

**TOWN OF BEDFORD**  
**November 21, 2019**  
**ENERGY COMMISSION MINUTES**

A meeting of the Bedford Energy Commission was held on November 21, 2019 at the Bedford Meeting Room, 10 Meetinghouse Road, Bedford, NH.

Present: Jeff Kerr (Chair), Catherine Rombeau (Town Council Liaison Alternate), John Schneller (School Board Liaison), Bill Foote (School Board Liaison Alternate),

Absent: John Russell (Vice Chair), Chris Bandazian (Town Council Liaison), Andrew Gillis, Bing Lu, John Russell, Sarah Braese, Tim Paradis

- I. Call to Order: Chairman Kerr opened the meeting at 7:00 PM. Mr. Schneller served as active temporary Vice Chair for the evening.
- II. Quorum Count: There were only 3 voting members present. Five are needed to vote, so no voting will take place this evening.
- III. Approval of Minutes – October 24, 2019 – no quorum so minutes could not be approved.
- IV. Reports of Members and Committees
  - a. Legislative update – No report was given in Mr. Bandazian’s absence.
  - b. School projects

Mr. Schneller has nothing to report this month but is hoping some DPW assets and labor gets freed up. It looks like they are finishing up at the transfer station and that will help us move forward with composting. They need to make some changes to the configuration at the transfer station where the tree waste goes now.

V. Special Orders

- a. Marc Hebert of Harbor Group and Mark Weissflog

Mr. Hebert discussed the building he built in Bedford that is all electric and solar powered. He also discussed why he chose to use solar power and how it is working for him. Prior to tonight’s meeting, Mr. Hebert had asked for an explanation of the Bedford Energy Commission. Chairman Kerr explained that the Bedford Energy Commission was an appointed commission from the Town Council that looks at ways to save energy for the Town by looking at electric bills and looking at the Transfer Station from a recycling perspective as examples. The Commission looks at environmental cost savings and ways to do things better. The Commission’s alternate mandate (given it has no power and no budget to do anything) is to research, study, and put together recommendations for the Town Council to act on or not. Mr. Hebert explained that Harbor Group is a registered investment advisor that has been in Bedford for quite some time. They were in Bedford Commons in a 2,600 square foot business condo. As the company grew and needed more space they designed an 11,200 square foot building and moved in a little over a year ago. Deciding to use solar power was something that evolved. They installed three heat pumps to heat and cool

the building. You can be cooling one room while heating another, so everyone in the company was pretty happy because they could set their room to whichever degree was comfortable to them. The heat pumps can move heat from one room to another and do not need a compressor to do it. The capital and operating cost of the heat pumps were higher than natural gas even though the heat pump was more efficient, and this was surprising. Their architect recommended looking into solar because it works well with in conjunction with heat pump systems. Harbor Group decided to put up a 79-kw solar system with 226 panels, many of which are on the roof of the building. More solar panels could have gone on the roof if they had designed the building *after* making the decision to go solar, but as it stood the building was already designed so more panels could not go up on the roof. If Mr. Hebert had to do it all over again he would have gone to the architect and designed the building to maximize the use of solar and used a ground mounted system. It didn't work smoothly right away. They went with a new product and there were issues with the heating system that needed to be worked out and the inverters needed to be changed. At this point in time the system is working very well; however, and Harbor Group is looking to add to the solar system. They had put in as many ground mounted panels as they could because the neighbor had very tall trees blocking the sun exposure. Once the neighbors saw that Harbor Group put in a solar system, they decided to do the same and cut down all the trees, so now there is plenty of sunlight and Harbor Group would like to add more ground mounted solar panels (about 40 ground mounted panels and about 14 kw of solar added to the system which brings them up just under the 100 kw limit set forth by the Public Utilities Commission). Mr. Hebert doesn't have at least 1 years' worth of data yet to be able to comment on what percentage of power the solar panels provide. It is not 100% yet, but he estimates it is about 75%. The solar panels are grid tied (not battery operated) and they are pulling from the grid to heat the building. When there is a bright sunny day, they are able to add power back to the grid.

Being a financial planner, Mr. Hebert was also attracted to the financials of a solar system. As a business owner this worked out extremely well. Harbor Group received a credit back from the Public Utilities Commission (PUC). They paid about \$172,000 for the total system and received \$30,000 back. They received a \$50,000 tax credit from the United States government which came directly off their taxes since they are an S-corp and it is a pass-through entity. They received accelerated depreciation on the remaining \$100,000 over a 5-year period of time which comes back as a tax credit and saves on taxes. When the electrical savings is added in he guesstimates the break-even point will be in about 4-6 years because they are in the top marginal tax bracket and can really take advantage of the taxes. Businesses considering this must look at what your top marginal tax bracket is especially if you have a pass-through entity because businesses in a lower tax bracket would take longer to break even; and the break even would be even longer for individuals considering solar. If you were to ask him if he would do it all over again, Mr. Hebert said resoundingly, "Yes!"

Mr. Hebert was very pleased to work with Mark Weissflog, President of K.W. Management which is a commercial and industrial electrical contractor that has been in Nashua for about 30 years. K.W. Management started doing small solar systems in 1998. Small systems are now about \$2.50 per kw installed and larger megawatt systems are well under \$1.00 per kw. A standard aluminum railing system was selected for Harbor Group and stanchions were installed before the roof went down so weathertightness could be ensured. If the roof ever needs to be replaced you can remove the system, leave the stanchions and put the new roof on quickly. An RBI steel pile driven racking system was used for the ground mounts and is very commonly used and a real workhorse. Installation included microinverters. Most inverters and modules are guaranteed for 10-20 years

and racking is guaranteed for 20-years. When you are looking at solar it is akin to filling your oil tank for 10, 20, or 30 years of oil at today's prices and it hedges future cost increases. When you buy solar you are taking a recurring monthly expense item and turning it into an investment. Paying the utility company is never going to end and it doesn't pay off and the cost typically goes up; but with solar you have payoff. If you produce over 100% you can enter into a group net metering agreement with someone else in the same service territory and sell off shares in your system. Community solar programs like this are very popular in Massachusetts where people buy into an array rather than putting one on their own house. In New Hampshire, net metering ran for many years as an off set to what you are purchasing, and as energy flows back onto the grid you get full cost avoidance of that energy. Monies build up in the summertime and you can expend those funds on your energy usage in the wintertime.

Mr. Hebert stated that there were many discussion at the State level and many think that those who *do not* have solar pay for those who *do* have solar and are not paying taxes on their energy, but that is not really the case because when you generate energy on a building and push it through the meter the next nearest neighbor utilizes that energy. Their meter spins forward, and your meter spins backwards. When their meter spins forward using your energy, Public Service gets paid for the distribution costs, the energy cost and taxes by the customer, so when you need that energy you have already paid the taxes on that energy. So there really is no cost avoidance by the solar installation and there is no tax liability or other claims of using the distribution system and not getting paid for it because the next nearest neighbor paid the distribution cost on the energy that was net metered. For whatever reason, this reasoning seems to elude our legislators.

If larger systems start to be installed (such as a 5-megawatt system on a landfill) this may change because as the system size grows it taxes the distribution system which is borne 100% by the developer/whoever installed the solar system. Mr. Foote noted that they learned that when they looked into putting solar on the Town landfill. Mr. Weissflog said some towns enter into power purchase agreements and they do not bear any cost other than hopefully a slightly lower energy cost on their bill. Chairman Kerr indicated that they also become intimately aware of power purchase agreements. Mr. Weissflog said that most buyouts in a purchase power agreement need to occur after year 6 and some are even earmarked at year 10. It allows the developer paying for the system to take advantage of the tax credit from the investment tax credit (ITC). The ITC is going to change next year from 30% to 26%. There is a drive in Washington right now to try and extend that. If you start a job in December you could still take 2 years to complete it and take advantage of the 30% tax credit. Depending on the size of the array that 4% difference might mean considerable money, that is why we see most larger arrays installed during the 4<sup>th</sup> quarter because the tax credit happens in the next calendar year, so most businesses wait until then to expend the funds. This is the way to work around the situation if you have no money. There are a number of New Hampshire towns working on large systems right now and embracing this. By approaching it in this manner the buyout happens when you determine it happens, not when the developer decides it is going to happen.

Mr. Hebert stated that people often ask about the cost to decommission a system in 25-30 years. In 25-years your system should be producing 80% of the power it was producing when it was first installed given maintenance on the system was conducted. Solar systems really don't have moving parts such as cooling fans, but the electronics must be monitored and someone must actively supervise them so they do not fail and cause your electric bill to go up. You can have alerts sent to a monitoring company that can send somebody out to service the system as soon as there is a

problem. When it snows the systems that measure the intensity of the sunlight shut off quickly when they get snow on them. Solar panels tend to keep the snow on them resulting in lots of alerts that something is going wrong with the system. As the snow melts off, the systems resumes. This is taken into account in the production estimates, and often remedied by the tilt of the panels, but can be disappointing not to have production when the sun is out. There are lots of advantages to putting panels on low shallow roofs because maintenance issues are not as pronounced in climbing up on that type of roof to service or replace something.

Chairman Kerr recently learned that someone is developing a new nano-coating that will cause the snow and dust to not stick to the panels. It is interesting to see the things coming down the pike to deal with these maintenance issues. Mr. Weissflog said the industry has grown in leaps and bounds and prices have gown down and array sizes are also shrinking. As of January 1, 2019, there are new fire regulations that require setbacks, though. There was further discussion on the state of modules today and fire regulations.

Some people say that solar systems belong in Arizona, not in New Hampshire, but Mr. Weissflog said that is not true because the cooler a module runs the more energy it produces and the voltage starts rising. At 40 or 30-degree ambient temperature the module temperature is 75-80-degrees. Modules are typically rated at 77-degrees which means when the temperature of the system is 77-degrees you should be getting close to, or a little above what you were promised. As the module temperature rises on a 90-degree day, for example, the modules run at about 140-degrees and are definitely running 20% less than what was advertised. As ambient temperature goes down into the teens with the wind blowing on a crisp, clear day you will have your best production in hours (but not days or months). A good December is worth less than half of a good May, June or July because of the lower sun angle; but because it is colder you make up for some of that; and snow and rain washes off well-tilted modules versus places like Arizona that produce dust and require cleaning. So, there are some advantages in New England because our average temperatures make the most energy from the solar panels.

## VI. Old Business

- a. Green Business Award – No report was given in Ms. Braese and Mr. Paradis’s absence.
- b. Solsmart – No report was given in Ms. Braese and Mr. Bandazian’s absence.
- c. Eversource bills to calculate demand charges – no report was given in Mr. Lu’s absence.
- d. Change transfer station policy to put recyclables in solid waste
  1. Proposal to change resident sorting to reduce costs and be ready for any future changes in recycling policy
  2. Is an onsite paper/cardboard baler an option?
  3. Maybe look at an outdoor screen again as part of the public education effort
    - A. Look at the BHS sign the PTG installed this year

Mr. Schneller reported that the Transfer Station road will be completed next week. The scales were moved to the front of the new road so people bringing commercial waste will now have to pay based on the weight of what they are discarding. Jeff Foote, Public Works Director, believes there is still some avoidance going on, but residents needn’t worry that they will be required to weigh the couple of garbage bins they are bringing into the Transfer Station. The end goal is to

reconfigure where tree waste is going so we can get 10% of the municipal solid waste out of the stream and recycle compostable waste where the scales previously were. The Transfer Station currently pays \$72.00/ton to have that waste trucked and burned at a burn site in Haverhill, MA so we will now be saving that money.

Mr. Foote talked to Jeff Foote about a policy change to separate different waste streams, but we are contractually obligated to Waste Management so making a change will not be easy, but maybe we could make a change in 2-years when the contract runs out. Maybe a market will also develop for recycling plastic in the future, but right now we pay to get rid of plastic and get nothing for it. Mr. Schneller thinks it will probably take at least 10 years to rebuild the plastic recycling business. Chairman Kerr has read about some start-up efforts that will take 5-10 years to come to fruition, but there is talk about getting plastic back to pellet form and re-using the pellets for fuel, so there are companies doing other things in this space and trying to tackle the problem. There are also projects to take plastic and use it in paving and asphalt projects (mixing plastic with asphalt and using it as a filler). Recycled glass is currently being crushed and stirred in to asphalt as a filler. The problem is there is more plastic and glass produced than we can possibly use in asphalt. The market is evolving, but it might take a decade to get there.

e. Plastic (#2) to structural plastic wood replacement

1. Working with the Conservation Commission to possibly address a bridge in Town

Mr. Schneller had a very good meeting with Beth Evarts, Chair of the Conservation Commission and they will be looking at some joint projects with recycled plastics made by Axion in Ohio (which buys materials that have been recycled, but not refined and melts it down to use to make things like railroad ties). Axion could custom fit things for our towns needs. Jeff Foote at the Department of Public Works said once the transfer station project is completed he will have more time and labor to direct to projects that he, Beth Evarts, and Mr. Schneller have defined as appropriate for Axion's products. The cost for the product is more, but it does not require labor for replacement cycle and has virtually have an indefinite life. Hopefully we can do something good for the environment and help people out on their tax bills.

Chairman Kerr discussed a product he found on Amazon that is a paver base made out of #2 plastic. You put down a gravel base, and then the plastic paver base that comes in a grid and more gravel on top of it, and it stabilizes the ground and works well for a path, trail, or driveways and parking spots. It is a permeable paver entirely using recycled plastic and it will not corrode like a metal paver base would. Chairman Kerr is currently doing a project with the product in his own backyard. It's not inexpensive (about \$180 for 72 square feet), but it may have a place in the Van Loan or Pulpit Rock projects if a fundraiser was undertaken. He says the plastic paver base is very good stuff.

f. Municipal Aggregation

Chairman Kerr said municipal aggregation is when the Town becomes a retail electric provider. Municipal aggregation was discussed in detail at the recent Local Energy Solutions Conference. Towns will be meeting via conference call this week to share notes about municipal aggregation. Chairman Kerr will be on the call to represent Bedford and gather information, see what other towns are doing, and get answers to some questions he has and will report back next month.

## VII. New Business

- a. Bringing Bedford Free Stuff
- b. Clean Energy NH Community Power Implementation Conference Call – Friday 11/19 at 10:00 AM

Chairman Kerr reported on a new Facebook Group called “Bringing Bedford Free Stuff” which is the equivalent of Freecycle but with its own Facebook page. It’s a way for people to get rid of stuff they don’t want and for other people to get stuff that other people are giving away and in turn, keeping things out of the landfill. He posted a couple of things on Manchester Freecycle and over the course of 2-3 months didn’t get any takers. He posted stuff on the Bringing Bedford Free Stuff Facebook page and “BOOM” and within hours both of the things (a big basketball goal and a four-bike bike rack) found new homes. He was happy to move these things, and the people who received them were happy to get them. It is a good way to share stuff and reduce things going into the landfill. He encouraged everyone to check it out.

Mr. Foote mentioned the Secondhand Shop at the Transfer Station and was told that a private citizen leases property there from Public Works and pays the Town rent on it. He sells and turns over stuff. He doesn’t get rich, but makes a little money and interacts with people.

VIII. Reminders: Next upcoming meeting is December 19, 2019

## IX. Adjournment

**MOTION to adjourn by Ms. Rombeau at 7:54 P.M. Seconded by Chairman Kerr.  
Vote taken- Motion Passed**

Respectfully submitted by,  
Tiffany Lewis